**3GPP TSG-CT WG1 Meeting #134-eC1-221069**

**E-meeting, 17th– 25th February 2022**

**3GPP TSG-CT WG4 Meeting #108-eC4-221437**

**E-Meeting, 17th – 25th February 2022** (revision of C4-221097)

**3GPP TSG-CT WG6 Meeting #110-eC6-220159**

**E-Meeting, 22nd – 25th February 2022**

 (revision of CP-212166)

**Source: LG Electronics**

**Title: Revised WID on CT aspects of Support for Minimization of service Interruption**

**Document for: Endorsement**

**Agenda Item: 17.1.1 (CT1) / 5 (CT4) / 5 (CT6)**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

# Title: CT aspects of Support for Minimization of service Interruption

## Acronym: MINT

## Unique identifier: 930003

Potential target Release: Rel-17

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** | X | X |  | X |  |
| **No** |  |  | X |  |  |
| **Don't know** |  |  |  |  | X |

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a …

|  |  |
| --- | --- |
|  | Feature |
| X | Building Block |
|  | *Work Task* |
|  | Study Item |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| MINT | SA1 | 850036 | Stage 1 of Support for Minimization of service Interruption |
| MINT | SA2 | 920062 | Stage 2 of Minimization of service Interruption |
| FS\_MINT-CT | CT1 | 900004 | Study on the CT aspects of Support for Minimization of service Interruption |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
|  |  |  |

## 3 Justification

When a network cannot provide communication service to its users due to certain events (e.g. fire), it is important to minimize the time when the users are out of communication services and to minimize additional impact to other networks. For example, when all users of one network switch to the other network due to the certain events, this should not lead to congestion of the other network due to surge of connection. While one network may provide help to users of neighbouring network, the impact to its home users should be minimized when huge numbers of users request access. Other aspects include restriction imposed on the UE from selecting other network, e.g. the case where UE was previously rejected on other network before the event occurs.

In order to analyse and identify requirements for the scenario above, SA1 performed study and finished normative work on Support for Minimization of service Interruption (MINT) for Rel-17. Relevant stage-1 requirements are specified in TS 22.011 and TS 22.261.

As determined in TSG #89e, TSG SA recommended CT1 that the study on the stage 2 aspects of MINT work needs to be done first before required normative work is progressed. CT1 performed study on these aspects for Rel-17, and the conclusions of the study are specified in 3GPP TR 24.811, which was approved by TSG in CT#92e meeting. Also TSG SA approved normative work item on the SA2 aspects of MINT in SA#92e meeting for Rel-17 as well.

Considering the conclusions of FS\_MINT-CT, there is a need to have a CT work item to develop the stage-2 and stage-3 for the requirements developed by CT1 during the study phase.

## 4 Objective

The objectives of this normative work item are to enhance the necessary CT specifications to specify the requirements developed by CT1 during the study phase, which are specified in TR 24.811.

The stage-2 and stage-3 may include the following (non-exhaustive, additional areas can be identified based on progress in SA2 and in normative work in RAN WGs) aspects.

For CT1, the expected work includes to:

- support the requirements and solutions for informing the UE about Disaster Condition based as concluded;

- support the requirements and solutions for configuring the UE with "the list of PLMN(s) to be used in disaster condition" and/or "prioritized list of PLMNs for disaster roaming";

- update the NAS procedures to support registration to the PLMN proving disaster roaming;

- update the stage 2 requirements for network selection in order to support disaster roaming;

- support the requirements and solutions for returning the UEs to the PLMN previously with Disaster Condition, when Disaster Condition is no longer applicable;

NOTE 1: How to notify the disaster inbound roamers that Disaster Condition is no longer applicable to be determined in the normative phase.

- update the NAS procedures to enhance NAS level mobility management congestion control;

- support the requirements and solutions for restricting the time when the UE can initiate the registration procedure upon arriving in the PLMN without Disaster Condition, and/or upon returning to the PLMN previously with Disaster Condition; and

NOTE 2: Whether these restrictions are signalled, pre-configured, or computed at the UE (possibly based on signalled or pre-configured parameters) will be decided in the normative phase.

- update the stage 2 requirements and the stage 3 protocols on the unified access control in order to support new access identity 3 for inbound disaster roamers.

For CT4, the expected work includes to:

- impacts on the procedures and parameters related to the configuration, provided for the Disaster Roaming services

- impacts on the procedures and parameter related to “Disaster Roaming indicator” to be notified to UDM and AUSF

For CT6, the expected work includes to:

- add parameters required for disaster roaming services to be pre-configured in USIM; and

- update the USAT REFRESH command indicating parameters required for disaster roaming services which is stored in the USIM has been updated.

## 5 Expected Output and Time scale

|  |
| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 23.122 | - Updates to automatic network selection and manual network selection in order to support disaster roaming; and- Potential updates to specify stage-2 aspects of MINT feature. | TSG CT#95 (March 2022) | CT1 responsibility |
| 24.501 | - Updates to registration procedure in order to support the registration to PLMN providing disaster roaming when Disaster Condition applies;- Updates to NAS MM procedures in order to enhance NAS level congestion control for disaster roaming and returning to PLMN previously with Disaster Condition;- Updates to NAS procedures in order to support configuration/notification of the information related to Disaster Condition or disaster roaming;- Updates to the unified access control in order to support new access identity for MINT. | TSG CT#95 (March 2022) | CT1 responsibility |
| 29.503 | - Update to add the configuration parameters required for disaster roaming services - Update to add “Disaster Roaming indicator” to be notified to UDM | TSG CT#96 (June 2022) | CT4 responsibility |
| 29.509 | - Update to add the configuration parameters required for disaster roaming services - Update to add “Disaster Roaming indicator” to be notified to AUSF | TSG CT#96 (June 2022) | CT4 responsibility |
| 31.102 | - Updates to add parameters required for disaster roaming services to be pre-configured in USIM | TSG CT#95 (March 2022) | CT6 responsibility |
| 31.111 | - Update the USAT REFRESH command indicating parameters required for disaster roaming services which is stored in the USIM has been updated. | TSG CT#95 (March 2022) | CT6 responsibility |

## 6 Work item Rapporteur(s)

Hyunsook Kim, LG Electronics, hyuns.kim@lge.com

## 7 Work item leadership

CT1

## 8 Aspects that involve other WGs

The following aspects may arise related to this WID:

- Security aspects; and

- RAN aspects.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| LG Electronics |
| Apple |
| Convida Wireless |
| Ericsson |
| HiSilicon |
| Huawei |
| InterDigital |
| KT Corp. |
| LG Uplus |
| Lenovo |
| Motorola Mobility |
| Nokia |
| Nokia Shanghai Bell |
| Qualcomm Incorporated |
| Samsung |
| SK Telecom |
| THALES |
| vivo |
| ZTE |
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